



SEQUENCE LISTING

<110> Zinselmeier, Chris
Habben, Jeff
Tomes, Dwight

<120> Regulated Expression of Genes in Plant
Seeds

<130> 0803

<140> US 09/545,334

<141> 2000-04-07

<150> US 60/129,844

<151> 1999-04-16

<160> 12

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 1608

<212> DNA

<213> Zea mays

<220>

<221> CDS

<222> (1)...(1605)

<400> 1

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| Met Ala Val Val Tyr Tyr Leu Leu Leu Ala Gly Leu Ile Ala Cys Ser | |
| 1 5 10 15 | |

| | |
|---|----|
| cat gca cta gcg gca ggc acg ctt gcg ctc gga gaa gat cgc ggc cgt | 96 |
| His Ala Leu Ala Ala Gly Thr Leu Ala Leu Gly Glu Asp Arg Gly Arg | |
| 20 25 30 | |

| | |
|---|-----|
| ccc tgg cca gcc ttc ctc gcc gcg ctg gcc ttg gac ggc aag ctc cgg | 144 |
| Pro Trp Pro Ala Phe Leu Ala Ala Leu Ala Leu Asp Gly Lys Leu Arg | |
| 35 40 45 | |

| | |
|---|-----|
| acc gac agc aac gcg acg gcg gcg gcc tcg acg gac ttc ggc aac atc | 192 |
| Thr Asp Ser Asn Ala Thr Ala Ala Ala Ser Thr Asp Phe Gly Asn Ile | |
| 50 55 60 | |

| | |
|---|-----|
| acg tcg gcg ctc ccg gcg gcg gtc cta tac ccg tcg tcc acg ggc gac | 240 |
| Thr Ser Ala Leu Pro Ala Ala Val Leu Tyr Pro Ser Ser Thr Gly Asp | |
| 65 70 75 80 | |

| | |
|---|-----|
| ctg gtg gcg ctg ctg agc gcg gcc aac tcc acc ccg ggg tgg ccc tac | 288 |
| Leu Val Ala Leu Leu Ser Ala Ala Asn Ser Thr Pro Gly Trp Pro Tyr | |
| 85 90 95 | |

| | |
|---|-----|
| acc atc gcg ttc cgc ggc cgc ggc cac tcc ctc atg ggc cag gcc ttc | 336 |
| Thr Ile Ala Phe Arg Gly Arg Gly His Ser Leu Met Gly Gln Ala Phe | |
| 100 105 110 | |

| | |
|---|------|
| gcc ccc ggc ggg gtg gtc gtc aac atg gcg tcc ctg ggc gac gcc gcc Ala Pro Gly Gly Val Val Val Asn Met Ala Ser Leu Gly Asp Ala Ala 115 120 125 | 384 |
| gcc gcc gcg ccg ccg cgc gtc aac gtg tcc gcg gac ggc cgc tac gtg Ala Ala Ala Pro Pro Arg Val Asn Val Ser Ala Asp Gly Arg Tyr Val 130 135 140 | 432 |
| gac gcc ggc ggc gag cag gtg tgg atc gac gtg ctg cgc gcg tct ctg Asp Ala Gly Gly Glu Gln Val Trp Ile Asp Val Leu Arg Ala Ser Leu 145 150 155 160 | 480 |
| gcg cgc ggc gtg gcg ccg cgc tcc tgg acc gac tac ctc tac ctc acc Ala Arg Gly Val Ala Pro Arg Ser Trp Thr Asp Tyr Leu Tyr Leu Thr 165 170 175 | 528 |
| gtc ggc ggc acg ctg tcc aac gca ggc atc agc ggc cag gcg ttc cgc Val Gly Gly Thr Leu Ser Asn Ala Gly Ile Ser Gly Gln Ala Phe Arg 180 185 190 | 576 |
| cac ggc cca cag ata tct aac gtg ctg gag atg gac gtt atc acc ggc His Gly Pro Gln Ile Ser Asn Val Leu Glu Met Asp Val Ile Thr Gly 195 200 205 | 624 |
| cat ggg gag atg gtg acg tgc tcc aag cag ctg aac gcg gac ctg ttc His Gly Glu Met Val Thr Cys Ser Lys Gln Leu Asn Ala Asp Leu Phe 210 215 220 | 672 |
| gac gcc gtc ctg ggc ggg ctg ggg cag ttc gga gtg atc acc cgg gcc Asp Ala Val Leu Gly Gly Leu Gly Gln Phe Gly Val Ile Thr Arg Ala 225 230 235 240 | 720 |
| cgg atc gcg gtg gag ccg gcg ccg gcg cgg gcg cgg tgg gtg cgg ctc Arg Ile Ala Val Glu Pro Ala Pro Ala Arg Ala Arg Trp Val Arg Leu 245 250 255 | 768 |
| gtg tac acc gac ttc gcg gcg ttc agc gcc gac cag gag cgg ctg acc Val Tyr Thr Asp Phe Ala Ala Phe Ser Ala Asp Gln Glu Arg Leu Thr 260 265 270 | 816 |
| gcc ccg cgg ccc ggc ggc ggc ggc gcg tcg ttc ggc ccg atg agc tac Ala Pro Arg Pro Gly Gly Gly Gly Ala Ser Phe Gly Pro Met Ser Tyr 275 280 285 | 864 |
| gtg gaa ggg tcg gtg ttc gtg aac cag agc ctg gcg acc gac ctg gcg Val Glu Gly Ser Val Phe Val Asn Gln Ser Leu Ala Thr Asp Leu Ala 290 295 300 | 912 |
| aac acg ggg ttc ttc acc gac gcc gac gtc gcc cgg atc gtc gcg ctc Asn Thr Gly Phe Phe Thr Asp Ala Asp Val Ala Arg Ile Val Ala Leu 305 310 315 320 | 960 |
| gcc ggg gag cgg aac gcc acc acc gtg tac agc atc gag gcc acg ctc Ala Gly Glu Arg Asn Ala Thr Thr Val Tyr Ser Ile Glu Ala Thr Leu 325 330 335 | 1008 |
| aac tac gac aac gcc acg gcg gcg gcg gcg gtg gac cag gag ctc gcg Asn Tyr Asp Asn Ala Thr Ala Ala Ala Val Asp Gln Glu Leu Ala 340 345 350 | 1056 |
| tcc gtg ctg ggc acg ctg agc tac gtg gaa ggg ttc gcg ttc cag cgc Ser Val Leu Gly Thr Leu Ser Tyr Val Glu Gly Phe Ala Phe Gln Arg | 1104 |

| 355 | 360 | 365 | |
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| gac gtg tcc tac acg gcg ttc ctt gac cgg gtg cac ggc gag gag gtg Asp Val Ser Tyr Thr Ala Phe Leu Asp Arg Val His Gly Glu Glu Val 370 375 380 | | | 1152 |
| gcg ctc aac aag ctg ggg ctg tgg cgg gtg ccg cac ccg tgg ctc aac Ala Leu Asn Lys Leu Gly Leu Trp Arg Val Pro His Pro Trp Leu Asn 385 390 395 400 | | | 1200 |
| atg ttc gtg ccg cgc tcg cgc atc gcc gac ttc gac cgc ggc gtc ttc Met Phe Val Pro Arg Ser Arg Ile Ala Asp Phe Asp Arg Gly Val Phe 405 410 415 | | | 1248 |
| aag ggc atc ttg cag ggc acc gac atc gtc ggc ccg ctc atc gtc tac Lys Gly Ile Leu Gln Gly Thr Asp Ile Val Gly Pro Leu Ile Val Tyr 420 425 430 | | | 1296 |
| ccc ctc aac aaa tcc atg tgg gac gac ggc atg tcg gcg gcg acg ccg Pro Leu Asn Lys Ser Met Trp Asp Asp Gly Met Ser Ala Ala Thr Pro 435 440 445 | | | 1344 |
| tcg gag gac gtg ttc tac gcg gtg tcg ctg ctc ttc tcg tcg gtg gcg Ser Glu Asp Val Phe Tyr Ala Val Ser Leu Leu Phe Ser Ser Val Ala 450 455 460 | | | 1392 |
| ccc aac gac ctg gcg agg ctg cag gag cag aac agg agg atc ctg cgc Pro Asn Asp Leu Ala Arg Leu Gln Glu Gln Asn Arg Arg Ile Leu Arg 465 470 475 480 | | | 1440 |
| ttc tgc gac ctc gcc ggg atc cag tac aag acc tac ctg gcg cgg cac Phe Cys Asp Leu Ala Gly Ile Gln Tyr Lys Thr Tyr Leu Ala Arg His 485 490 495 | | | 1488 |
| acg gac cgc agt gac tgg gtc cgc cac ttc ggc gcc gcc gag tgg aat Thr Asp Arg Ser Asp Trp Val Arg His Phe Gly Ala Ala Glu Trp Asn 500 505 510 | | | 1536 |
| cgc ttc gtg gag atg aag aac aag tac gac ccc aag agg ctg ctc tcc Arg Phe Val Glu Met Lys Asn Lys Tyr Asp Pro Lys Arg Leu Leu Ser 515 520 525 | | | 1584 |
| ccc ggc cag gac atc ttc aac tga Pro Gly Gln Asp Ile Phe Asn 530 535 | | | 1608 |

<210> 2
 <211> 535
 <212> PRT
 <213> Zea mays

<400> 2
 Met Ala Val Val Tyr Tyr Leu Leu Leu Ala Gly Leu Ile Ala Cys Ser
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 His Ala Leu Ala Ala Gly Thr Leu Ala Leu Gly Glu Asp Arg Gly Arg
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 Pro Trp Pro Ala Phe Leu Ala Ala Leu Ala Leu Asp Gly Lys Leu Arg
 35 40 45
 Thr Asp Ser Asn Ala Thr Ala Ala Ala Ser Thr Asp Phe Gly Asn Ile
 50 55 60
 Thr Ser Ala Leu Pro Ala Ala Val Leu Tyr Pro Ser Ser Thr Gly Asp

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|
| 65 | | | | | 70 | | | | | 75 | | | | 80 |
| Leu | Val | Ala | Leu | Leu | Ser | Ala | Ala | Asn | Ser | Thr | Pro | Gly | Trp | Pro Tyr |
| | | | 85 | | | | | | 90 | | | | | 95 |
| Thr | Ile | Ala | Phe | Arg | Gly | Arg | Gly | His | Ser | Leu | Met | Gly | Gln | Ala Phe |
| | | | 100 | | | | | 105 | | | | | 110 | |
| Ala | Pro | Gly | Gly | Val | Val | Val | Asn | Met | Ala | Ser | Leu | Gly | Asp | Ala Ala |
| | | 115 | | | | | 120 | | | | | 125 | | |
| Ala | Ala | Ala | Pro | Pro | Arg | Val | Asn | Val | Ser | Ala | Asp | Gly | Arg | Tyr Val |
| | 130 | | | | | 135 | | | | | 140 | | | |
| Asp | Ala | Gly | Gly | Glu | Gln | Val | Trp | Ile | Asp | Val | Leu | Arg | Ala | Ser Leu |
| 145 | | | | | 150 | | | | | 155 | | | | 160 |
| Ala | Arg | Gly | Val | Ala | Pro | Arg | Ser | Trp | Thr | Asp | Tyr | Leu | Tyr | Leu Thr |
| | | | 165 | | | | | | 170 | | | | | 175 |
| Val | Gly | Gly | Thr | Leu | Ser | Asn | Ala | Gly | Ile | Ser | Gly | Gln | Ala | Phe Arg |
| | | | 180 | | | | | 185 | | | | | 190 | |
| His | Gly | Pro | Gln | Ile | Ser | Asn | Val | Leu | Glu | Met | Asp | Val | Ile | Thr Gly |
| | | 195 | | | | | 200 | | | | | 205 | | |
| His | Gly | Glu | Met | Val | Thr | Cys | Ser | Lys | Gln | Leu | Asn | Ala | Asp | Leu Phe |
| | 210 | | | | | 215 | | | | | 220 | | | |
| Asp | Ala | Val | Leu | Gly | Gly | Leu | Gly | Gln | Phe | Gly | Val | Ile | Thr | Arg Ala |
| 225 | | | | | 230 | | | | | 235 | | | | 240 |
| Arg | Ile | Ala | Val | Glu | Pro | Ala | Pro | Ala | Arg | Ala | Arg | Trp | Val | Arg Leu |
| | | | 245 | | | | | | 250 | | | | | 255 |
| Val | Tyr | Thr | Asp | Phe | Ala | Ala | Phe | Ser | Ala | Asp | Gln | Glu | Arg | Leu Thr |
| | | 260 | | | | | | 265 | | | | | 270 | |
| Ala | Pro | Arg | Pro | Gly | Gly | Gly | Gly | Ala | Ser | Phe | Gly | Pro | Met | Ser Tyr |
| | | 275 | | | | | 280 | | | | | 285 | | |
| Val | Glu | Gly | Ser | Val | Phe | Val | Asn | Gln | Ser | Leu | Ala | Thr | Asp | Leu Ala |
| | 290 | | | | | 295 | | | | | 300 | | | |
| Asn | Thr | Gly | Phe | Phe | Thr | Asp | Ala | Asp | Val | Ala | Arg | Ile | Val | Ala Leu |
| 305 | | | | | 310 | | | | | 315 | | | | 320 |
| Ala | Gly | Glu | Arg | Asn | Ala | Thr | Thr | Val | Tyr | Ser | Ile | Glu | Ala | Thr Leu |
| | | | 325 | | | | | | 330 | | | | | 335 |
| Asn | Tyr | Asp | Asn | Ala | Thr | Ala | Ala | Ala | Ala | Val | Asp | Gln | Glu | Leu Ala |
| | | 340 | | | | | | 345 | | | | | 350 | |
| Ser | Val | Leu | Gly | Thr | Leu | Ser | Tyr | Val | Glu | Gly | Phe | Ala | Phe | Gln Arg |
| | | 355 | | | | | 360 | | | | | 365 | | |
| Asp | Val | Ser | Tyr | Thr | Ala | Phe | Leu | Asp | Arg | Val | His | Gly | Glu | Glu Val |
| | 370 | | | | | 375 | | | | | 380 | | | |
| Ala | Leu | Asn | Lys | Leu | Gly | Leu | Trp | Arg | Val | Pro | His | Pro | Trp | Leu Asn |
| 385 | | | | | 390 | | | | | 395 | | | | 400 |
| Met | Phe | Val | Pro | Arg | Ser | Arg | Ile | Ala | Asp | Phe | Asp | Arg | Gly | Val Phe |
| | | | 405 | | | | | | 410 | | | | | 415 |
| Lys | Gly | Ile | Leu | Gln | Gly | Thr | Asp | Ile | Val | Gly | Pro | Leu | Ile | Val Tyr |
| | | 420 | | | | | | 425 | | | | | 430 | |
| Pro | Leu | Asn | Lys | Ser | Met | Trp | Asp | Asp | Gly | Met | Ser | Ala | Ala | Thr Pro |
| | | 435 | | | | | 440 | | | | | 445 | | |
| Ser | Glu | Asp | Val | Phe | Tyr | Ala | Val | Ser | Leu | Leu | Phe | Ser | Ser | Val Ala |
| | 450 | | | | | 455 | | | | | 460 | | | |
| Pro | Asn | Asp | Leu | Ala | Arg | Leu | Gln | Glu | Gln | Asn | Arg | Arg | Ile | Leu Arg |
| 465 | | | | | 470 | | | | | 475 | | | | 480 |
| Phe | Cys | Asp | Leu | Ala | Gly | Ile | Gln | Tyr | Lys | Thr | Tyr | Leu | Ala | Arg His |
| | | | 485 | | | | | | 490 | | | | | 495 |
| Thr | Asp | Arg | Ser | Asp | Trp | Val | Arg | His | Phe | Gly | Ala | Ala | Glu | Trp Asn |
| | | 500 | | | | | | 505 | | | | | 510 | |
| Arg | Phe | Val | Glu | Met | Lys | Asn | Lys | Tyr | Asp | Pro | Lys | Arg | Leu | Leu Ser |
| | | 515 | | | | | 520 | | | | | | 525 | |
| Pro | Gly | Gln | Asp | Ile | Phe | Asn | | | | | | | | |
| | 530 | | | | | 535 | | | | | | | | |

<210> 3

<211> 51

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthesized based on sequence from *Agrobacterium tumefaciens*

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 <210> 4
 <211> 42
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthesized based on sequence from *Agrobacterium tumefaciens*

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 <210> 5
 <211> 29
 <212> DNA
 <213> *Zea mays*

 <400> 5
 catgccatgg cgggtggttta ttacctgct 29

 <210> 6
 <211> 31
 <212> DNA
 <213> *Zea mays*

 <400> 6
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 <210> 7
 <211> 5622
 <212> DNA
 <213> Artificial Sequence

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 <223> Promoter and terminator from *Zea mays* as found in Genbank Accession #S78780; gene from *Agrobacterium tumefaciens* as found in Molecular and General Genetics 216:388-394 (1989).

 <400> 7
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 ttggttgaag catattcacg caatctccac acataaagggt ttatgtataa acttacattt 180
 agctcagttt aattacagtc ttatttggat gcatatgtat ggttctcaat ccatataagt 240
 tagagtaaaa aataagttta aattttatct taattcactc caacatatat ggatctacaa 300
 tactcatgtg catccaaaca aactacttat attgaggtga atttggtaga aattaaacta 360
 acttacacac taagccaatc ttactatat taaagcacca gtttcaacga tcgtcccgcg 420
 tcaatattat taaaaaactc ctacatttct ttataatcaa cccgcactct tataatctct 480
 tctctactac tataataaga gagtttatgt acaaaataag gtgaaattat ctataagtgt 540
 tctggatatt ggttggtggc tcccatattc acacaacctc atcaatagaa aacatatgtt 600
 ttattaaaaac aaaattttatc atatatacata tatatatata tatcatatat atatataaac 660
 cgtagcaatg cacgggcata taactagtgc aacttaatac atgtgtgtat taagatgaat 720

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|------|
| aagaggggat | ccaaataaaa | aacttggtgc | ttacgtatgg | atcgaaaggg | gttggaacg | 780 |
| attaaacgat | taaatctctt | cctagtcmaa | attgaataga | aggagattta | atatatccca | 840 |
| atccccctcg | atcatccagg | tgcaaccgta | taagtcctaa | agtgggtgagg | aacacgaaag | 900 |
| aaccatgcat | tggcatgtaa | agctccaaga | atttggtgta | tccttaacaa | ctcacagaac | 960 |
| atcaacaaaa | attgcacgtc | aagggtattg | ggtaagaaac | aatcaaaaaa | atcctctctg | 1020 |
| tgtgcaaaga | aacacgggtga | gtcatgccga | gatcatactc | atctgatata | catgcttaca | 1080 |
| gctcacaaga | cattacaaac | aactcatatt | gcattacaaa | gatcgtttca | tgaaaaataa | 1140 |
| aataggccgg | acaggacaaa | aatccttgac | gtgtaaagta | aattttacaac | aaaaaaaaag | 1200 |
| ccatatgtca | agctaaatct | aattcgtttt | acgtagatca | acaacctgta | gaaggcaaca | 1260 |
| aaactgagcc | acgcagaagt | acagaatgat | tccagatgaa | ccatcgacgt | gctacgtaaa | 1320 |
| gagagtgcg | agtcataatac | atttggcaag | aaacatgaa | gctgcctaca | gccgtatcgg | 1380 |
| tggcataaga | acacaagaaa | ttgtgttaat | taatcaaagc | tataaataac | gctcgcacgc | 1440 |
| ctgtgcactt | ctccatcacc | accactgggt | cttcagacca | ttagctttat | ctactccaga | 1500 |
| gcgcagaaga | acccgatcga | caccatggat | ctacgtctaa | ttttcgggtcc | aacttgcaca | 1560 |
| ggaaagacat | cgactgcat | agctcttgcc | cagcagactg | gcctcccagt | cctctcgctc | 1620 |
| gatcgcgctc | aatgctgtcc | tcaactatca | accggaagcg | ggcgaccaac | agtgggaagaa | 1680 |
| ctgaaaggaa | cgactcgtct | gtaccttgat | gatcgccctt | tggtaaaggg | tatcattaca | 1740 |
| gccaaagcaag | ctcatgaacg | gctcattgcg | gaggtgcaca | atcacgaggc | caaaggcggg | 1800 |
| cttattcttg | agggaggatc | tatctcgttg | ctcaggtgca | tggcgcaaag | tcgttattgg | 1860 |
| aacgcgggatt | ttcgttggca | tattattcgc | aacgagttag | cagacgagga | gagcttcatg | 1920 |
| agcgtggcca | agaccagagt | taagcagatg | ttacgcccct | ctgcaggtct | ttctattatc | 1980 |
| caagagttgg | ttcaactttg | gagggagcct | cggctgaggg | ccatactgga | agggatcgat | 2040 |
| ggatatcgat | atgccttgct | atttgcctacc | cagaaccaga | tcacgcccga | tatgctattg | 2100 |
| cagctcgacg | cagatatgga | gaataaattg | attcacggta | tcgctcagga | gtttctaatc | 2160 |
| catgcgcgtc | gacaggaaca | gaaattccct | ttgggtggcg | cgacagctgt | cgaagcggtt | 2220 |
| gaaggaccac | catttcgaat | gtgagttgat | ccccggcggt | gtccccact | gaagaaacta | 2280 |
| tgtgctgtag | tatagccgct | ggctagctag | ctagttgagt | catttagcgg | cgatgattga | 2340 |
| gtaataatgt | gtcacgcac | accatgcacg | ggtggcagtc | tcagtgtgag | caatgacctg | 2400 |
| aatgaacaat | tgaaatgaaa | agaaaaaggt | attgttccaa | attaaacgtt | ttaacctttt | 2460 |
| aataggttta | tacaataatt | gatatatgtt | ttctgtatat | gtctaatttg | ttatcatcca | 2520 |
| tttagatata | gacgaaaaaa | aatctaagaa | ctaaaaacaa | tgctaatttg | aatgaaggg | 2580 |
| agtatatatt | gggataatgt | cgatgagatc | cctcgtaata | tcaccgacat | cacacgtgtc | 2640 |
| cagttaatgt | atcagtgata | cgtgtattca | catttgttgc | gcgtaggcgt | acccaacaat | 2700 |
| tttgatcgac | tatcagaaag | tcaacgggaag | cgagtcgacc | tcgagggggg | gcccgggtacc | 2760 |
| aagatatcaa | ccgcgggaaag | atctaagcat | gcaagggccc | aagtcgacct | gcagaagctt | 2820 |
| gcatgcctgc | agtcgacgt | gacccggctc | tgccctctc | tagagataat | gagcattgca | 2880 |
| tgtctaagtt | ataaaaaatt | accacatatt | ttttttgtca | cacttgtttg | aagtgcagtt | 2940 |
| tatctatctt | tatacatata | tttaaacttt | actctacgaa | taatataatc | tatagtacta | 3000 |
| caataatata | agtgttttag | agaatcatat | aaatgaacag | ttagacatgg | tctaaaggac | 3060 |
| aattgagtat | tttgacaaca | ggactctaca | gttttatctt | tttagtgtgc | atgtgttctc | 3120 |
| cttttttttt | gcaaataget | tcacctatat | aatacttcat | ccatttttatt | agtacatcca | 3180 |
| tttagggttt | aggggttaatg | gttttttatag | actaattttt | ttagtacatc | tattttattc | 3240 |
| tatttttagcc | tctaatttaa | gaaaactaaa | actctatttt | agttttttta | tttaataaatt | 3300 |
| tagatataaa | atagaataaa | ataaagtgc | taaaaattaa | acaaataccc | tttaagaatt | 3360 |
| taaaaaaact | aaggaaacat | ttttcttggt | tcgagtagat | aatgccagcc | tgttaaacgc | 3420 |
| cgtcgatcga | cgagtctaac | ggacaccaac | cagcgaacca | gcagcgctgc | gtcgggccaa | 3480 |
| gcgaagcaga | cggcacggca | tctctgtcgc | tgccctctgga | ccccctctga | gagttccgct | 3540 |
| ccaccgttgg | acttgctccg | ctgtcggcat | ccagaaattg | cgtggcggag | cggcagacgt | 3600 |
| gagccggcac | ggcaggcggc | ctcctcctcc | tctcacggca | cggcagctac | gggggattcc | 3660 |
| tttcccaccg | ctccttcgct | ttcccttctc | cgcccgccgt | aataaataga | cacccccgcc | 3720 |
| acaccctctt | tccccaacct | cgtgttggtc | ggagcgcaca | cacacacaac | cagatctccc | 3780 |
| ccaaatccac | ccgtcggcac | ctccgcttca | aggtacgccg | ctcgtcctcc | cccccccccc | 3840 |
| ctctctacac | tctctagatc | ggcggtccgg | tccatgggta | gggcccggta | gttctacttc | 3900 |
| tgttcatggt | tgtgttagat | cgtgtttgt | gttagatccg | tgctgctagc | gttcgtacac | 3960 |
| ggatgcgacc | tgtacgtcag | acacgttctg | attgctaact | tgccagtgtt | tctctttggg | 4020 |
| gaatcctggg | atggctctag | cgttccgca | gacgggatcg | atttcatgat | tttttttggt | 4080 |
| tcgttgcata | gggtttgggt | tgcccttttc | ctttatttca | atatatgccg | tgcaacttgtt | 4140 |
| tgtcgggtca | tcttttcatg | cttttttttg | tcttggttgt | gatgatgtgg | tctgggtggg | 4200 |
| cggctcgttct | agatcggagt | agaattctgt | ttcaaaactac | ctgggtggatt | tattaatttt | 4260 |
| ggatctgtat | gtgtgtgcca | tacatattca | tagttacgaa | ttgaagatga | tggttgga | 4320 |
| tatcgatcta | ggataggtat | acatgttgat | gcggtgttta | ctgatgcata | tacagagatg | 4380 |
| ctttttgttc | gcttgggtgt | gatgatgtgg | tgtgggtggg | cggtcgttca | ttcgttctag | 4440 |

| | | | | | | |
|------------|------------|-------------|------------|-------------|-------------|------|
| atcggagtag | aatactgttt | caaactacct | ggtgtattta | ttaatttttg | aactgtatgt | 4500 |
| gtgtgtcata | catcttcata | gttacgagtt | taagatggat | ggaaatatcg | atctaggata | 4560 |
| ggtatacatg | ttgatgtggg | ttttactgat | gcatatacat | gatggcatat | gcagcatcta | 4620 |
| ttcatatgct | ctaaccttga | gtacctatct | attataataa | acaagtatgt | tttataatta | 4680 |
| ttttgatctt | gatatacttg | gatgatggca | tatgcagcag | ctatatgtgg | atTTTTTTtag | 4740 |
| ccctgccttc | atacgctatt | tatttgcttg | gtactgtttc | ttttgtcgat | gtcaccctg | 4800 |
| ttgtttggtg | ttactttctg | aggtcgaccg | ccggggatcc | acacgacacc | atgtcccccg | 4860 |
| agcgcgcgcc | cgtcgagatc | cgcccgccca | ccgcccgcga | catggccgcc | gtgtgcgaca | 4920 |
| tcgtgaacca | ctacatcgag | acctccaccg | tgaacttccg | caccgagccg | cagacccccg | 4980 |
| aggagtggat | cgacgacctg | gagcgccctc | aggaccgcta | cccgtggctc | gtggccgagg | 5040 |
| tggagggcgt | ggtggccggc | atcgccctacg | ccggcccgtg | gaaggcccg | aacgcctacg | 5100 |
| actggaccgt | ggagtcaccc | gtgtacgtgt | cccaccgcca | ccagcgccctc | ggcctcggtc | 5160 |
| ccaccctcta | caccacctc | ctcaagagca | tggaggccca | gggcttcaag | tccgtgggtg | 5220 |
| ccgtgatcgg | cctcccgaac | gacccgtccg | tgcgcctcca | cgaggccctc | ggctacaccg | 5280 |
| cccgcggcac | cctccgcgcc | gccggctaca | agcacggcgg | ctggcacgac | gtcggcttct | 5340 |
| ggcagcgcg | cttcgagctg | ccggccccc | cgcgcccggt | gcgcccgggtg | acgcagatct | 5400 |
| gagtcgacct | gcaggcatgc | cgctgaaatc | accagtctct | ctctacaaat | ctatctctct | 5460 |
| ctataataat | gtgtgagtag | ttcccagata | agggaattag | ggttcttata | gggtttcgct | 5520 |
| catgtgttga | gcatataaga | aacccttagt | atgtatttgt | atTTGTAAAA | tacttctatc | 5580 |
| aataaaattt | ctaattccta | aaacccaaat | ccagtggcga | gc | | 5622 |

<210> 8

<211> 2722

<212> DNA

<213> Artificial Sequence

<220>

<223> Promoter from *Hordeum vulgare*, Plant Journal 6:849-860 (1994); gene from *Agrobacterium tumefaciens*, Molecular and General Genetics 216:388-394 (1989); terminator from *Zea mays*, Genbank Accession #S78780.

<400> 8

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| cgcccgctct | agaactagtg | gatctcgatg | tgtagtctac | gagaagggtt | aaccgtctct | 60 |
| tcgtgagaat | aaccgtggcc | taaaaataag | ccgatgagga | taaataaaat | gtggtggtac | 120 |
| agtacttcaa | gaggtttact | catcaagagg | atgcttttcc | gatgagctct | agtagtacat | 180 |
| cggacctcac | atacctccat | tgtggtgaaa | tattttgtgc | tcatttagtg | atgggtaaat | 240 |
| tttgtttatg | tcactctagg | ttttgacatt | tcagttttgc | cactcttagg | ttttgacaaa | 300 |
| taattttccat | tccgcggcaa | aagcaaaaaca | atTTTatTTT | actttttacca | ctcttagctt | 360 |
| tcacaatgta | tcacaaatgc | cactctagaa | attctgttta | tgccacagaa | tgtgaaaaaa | 420 |
| aacactcact | tattttgaagc | caagggtgtc | atggcatgga | aatgtgacat | aaagtaacgt | 480 |
| tcgtgtataa | gaaaaaattg | tactcctcgt | aacaagagac | ggaaacatca | tgagacaatc | 540 |
| gcgtttggaa | ggctttgcat | cacctttgga | tgatgcgcac | gaatggagtc | gtctgcttgc | 600 |
| tagccttcgc | ctaccgcccc | ctgagtcggg | gcggcaacta | ccatcggcga | acgaccagc | 660 |
| tgacctctac | cgaccggact | tgaatgcgct | accttcgcta | gcgacgatgg | ccgcgtacgc | 720 |
| tggcgacgtg | ccccgcgatg | catggcggca | catggcggagc | tcagaccgtg | cgtggctggc | 780 |
| tacaaatacg | taccccgtag | gtgccctagc | tagaaactta | cacctgcaac | tgcgagagcg | 840 |
| agcgtgtgag | tgtagccgag | tagatcccc | gggctgcagc | ttatttttac | aacaattacc | 900 |
| aacaacaaca | aacaacaaac | aacattacaa | ttactattta | caattacagt | cgacggatca | 960 |
| agtgcaaagg | tccgccttgt | ttctcctctg | tctcttgatc | tgactaatct | tggtttatga | 1020 |
| ttcgttgagt | aattttgggg | aaagcttcgt | ccacagtttt | tttttcgatg | aacagtgccg | 1080 |
| cagtggcgct | gatcttgtat | gctatcctgc | aatcgtgggtg | aacttatgtc | ttttatatcc | 1140 |
| ttcactacca | tgaaaagact | agtaatcttt | ctcgatgtaa | catcgtccag | cactgctatt | 1200 |
| accgtgtggg | ccatccgaca | gtctggctga | acacatcata | cgatattgag | caaagatcga | 1260 |
| tctatcttcc | ctgttcttta | atgaaagacg | tcattttcat | cagtatgac | taagaatggt | 1320 |
| gcaacttgca | aggaggcggt | tctttctttg | aattttaaacta | actcgttgag | tggcctgtgt | 1380 |
| tctcggacgt | aaggcctttg | ctgctccaca | catgtccatt | cgaattttac | cgtgttttagc | 1440 |
| aagggcgaaa | agtttgcata | ttgatgatTT | agcttgacta | tgcgattgct | ttcctggacc | 1500 |
| cgtgcagctg | cggacggatc | caccatggat | ctacgtctaa | ttttcgggtc | aacttgacac | 1560 |
| ggaaagacat | cgactgcgat | agctcttgcc | cagcagactg | gcctcccagt | cctctcgctc | 1620 |

| | | | | | | |
|-------------|------------|------------|------------|------------|-------------|------|
| gatcgcgctcc | aatgctgtcc | tcaactatca | accggaagcg | ggcgaccaac | agtggaagaa | 1680 |
| ctgaaaggaa | cgactcgtct | gtaccttgat | gatcgccctt | tggtaaaggg | tatcattaca | 1740 |
| gccaaagcaag | ctcatgaacg | gctcattgcg | gaggtgcaca | atcacgaggc | caaaggcggg | 1800 |
| cttattcttg | agggaggatc | tatctcgttg | ctcaggtgca | tggcgcaaag | tcgttattgg | 1860 |
| aacgcggatt | ttcgttggca | tattattcgc | aacgagttag | cagacgagga | gagcttcattg | 1920 |
| agcgtggcca | agaccagagt | taagcagatg | ttacgcccct | ctgcaggtct | ttctattatc | 1980 |
| caagagttgg | ttcaactttg | gagggagcct | cggctgaggc | ccatactgga | agggatcgat | 2040 |
| ggatatcgat | atgccctgct | atttgctacc | cagaaccaga | tcacgcccga | tatgctattg | 2100 |
| cagctcgacg | cagatatgga | gaataaattg | attcacggta | tcgctcagga | gtttctaate | 2160 |
| catgcgcgtc | gacaggaaca | gaaattccct | ttggtgggcg | cgacagctgt | cgaagcgttt | 2220 |
| gaaggaccac | catttcgaat | gtgagttgat | ccccggcggt | gtccccact | gaagaaacta | 2280 |
| tgtgctgtag | tatagccgct | ggctagctag | ctagttgagt | catttagcgg | cgatgattga | 2340 |
| gtaataatgt | gtcacgcac | accatgcatg | ggtggcagtc | tcagtgtgag | caatgacctg | 2400 |
| aatgaacaat | tgaaatgaaa | agaaaaaagt | attgttccaa | attaaacgtt | ttaacctttt | 2460 |
| aataggttta | tacaataatt | gatatatggt | ttctgtatat | gtctaatttg | ttatcatcca | 2520 |
| tttagatata | gacgaaaaaa | aatctaagaa | ctaaaacaaa | tgctaatttg | aaatgaaggg | 2580 |
| agtatatatt | gggataatgt | cgatgagatc | cctcgtaata | tcaccgacat | cacacgtgtc | 2640 |
| cagttaatgt | atcagtgata | cgtgtattca | catttggtgc | gcgtaggcgt | acccaacaat | 2700 |
| tttgatcgac | tatcagaaag | tc | | | | 2722 |

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<211> 2722

<212> DNA

<213> Artificial Sequence

<220>

<223> Promoter from Zea mays, U.S. patent application 09/377,648;
gene from Agrobacterium tumefaciens, Molecular and General
Genetics 216:388-394 (1989); terminator from Solanum
tuberosum, Plant Cell 1(1):115-122 (1989).

<400> 9

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|------|
| cgcccgctct | agaactagt | gatctcgat | tgtagtctac | gagaagggtt | aaccgtctct | 60 |
| tcgtgagaat | aaccgtggcc | taaaaataag | ccgatgagga | taaataaaat | gtggtggtac | 120 |
| agtacttcaa | gaggtttact | catcaagagg | atgcttttcc | gatgagctct | agtagtacat | 180 |
| cggacctcac | atacctccat | tgtggtgaaa | tattttgtgc | tcatttagtg | atgggtaaat | 240 |
| tttgtttatg | tactctagg | ttttgacatt | tcagttttgc | cactcttagg | ttttgacaaa | 300 |
| taatttccat | tcgcggtcaa | aagcaaaaaca | attttatttt | actttttacca | ctcttagctt | 360 |
| tcacaatgta | tcacaaatgc | cactctagaa | attctgttta | tgccacagaa | tgtgaaaaaa | 420 |
| aacactcact | tatttgaaagc | caagggtgttc | atggcatgga | aatgtgacat | aaagtaacgt | 480 |
| tcgtgtataa | gaaaaaattg | tactcctcgt | aacaagagac | ggaaacatca | tgagacaatc | 540 |
| gcgtttggaa | ggctttgcat | cacctttgga | tgatgcgcac | gaatggagtc | gtctgcttgc | 600 |
| tagccttcgc | ctaccgcca | ctgagtcagg | gcggcaacta | ccatcggcga | acgaccagc | 660 |
| tgacctctac | cgaccggact | tgaatgcgct | accttcgtca | gcgacgatgg | ccgcgtacgc | 720 |
| tggcgacgtg | ccccgcgatg | catggcggca | catggcgagc | tcagaccgtg | cgtggctggc | 780 |
| tacaaatacg | taccccgtag | gtgccctagc | tagaaactta | cacctgcaac | tgcgagagcg | 840 |
| agcgtgtgag | tgtagccgag | tagatcccc | gggctgcagc | ttatttttac | aacaattacc | 900 |
| aacaacaaca | aacaacaaac | aacattacaa | ttactattta | caattacagt | cgacggatca | 960 |
| agtgcaaagg | tcgccttgt | ttctcctctg | tctcttgatc | tgactaatct | tggtttatga | 1020 |
| ttcgttgagt | aattttgggg | aaagcttcgt | ccacagtttt | tttttcgatg | aacagtgcg | 1080 |
| cagtggcgct | gatcttgtat | gctatcctgc | aatcgtggtg | aacttatgtc | ttttatatcc | 1140 |
| ttcactacca | tgaaaagact | agtaatcttt | ctcgatgtaa | catcgtccag | cactgctatt | 1200 |
| accgtgtggt | ccatccgaca | gtctggctga | acacatcata | cgatattgag | caaagatcga | 1260 |
| tctatcttcc | ctgttcttta | atgaaagacg | tcattttcat | cagtatgac | taagaatgtt | 1320 |
| gcaacttgca | aggaggcgtt | tctttctttg | aatttaacta | actcgttgag | tggccctggt | 1380 |
| tctcggacgt | aaggcctttg | ctgctccaca | cattgtccatt | cgaattttac | cgtgttttagc | 1440 |
| aagggcgaaa | agtttgcac | ttgatgattt | agcttgacta | tgcgattgct | ttcctggacc | 1500 |
| cgtgcagctg | cggacggatc | caccatggat | ctacgtctaa | ttttcgggtc | aacttgacac | 1560 |
| ggaaagacat | cgactgcgat | agctcttgcc | cagcagactg | gcctcccagt | cctctcgtc | 1620 |
| gatcgcgctcc | aatgctgtcc | tcaactatca | accggaagcg | ggcgaccaac | agtggaagaa | 1680 |
| ctgaaaggaa | cgactcgtct | gtaccttgat | gatcgccctt | tggtaaaggg | tatcattaca | 1740 |
| gccaaagcaag | ctcatgaacg | gctcattgcg | gaggtgcaca | atcacgaggc | caaaggcggg | 1800 |

| | | | | | | |
|-------------|-------------|------------|------------|------------|-------------|------|
| cttattcttg | agggaggatc | tatctcgttg | ctcaggtgca | tggcgcaaag | tcgttattgg | 1860 |
| aacgcggatt | ttcggtggca | tattattcgc | aacgagttag | cagacgagga | gagcttcatg | 1920 |
| agcgtggcca | agaccagagt | taagcagatg | ttacgcccct | ctgcaggtct | ttctattatc | 1980 |
| caagagttgg | ttcaactttg | gagggagcct | cggctgaggc | ccatactgga | agggatcgat | 2040 |
| ggatatcgat | atgccctgct | atttgctacc | cagaaccaga | tcacgcccga | tatgctattg | 2100 |
| cagctcgcgc | cagatatgga | gaataaattg | attcacggta | tcgctcagga | gttttctaate | 2160 |
| catgcgcgctc | gacaggaaca | gaaattccct | ttggtgggcy | cgacagctgt | cgaagcggtt | 2220 |
| gaaggaccac | catttcgaat | gtgagttgat | ccccggcggt | gtccccact | gaagaaacta | 2280 |
| tgtgctgtag | tatagccgct | ggctagctag | ctagttgagt | catttagcgg | cgatgattga | 2340 |
| gtaataatgt | gtcacgcatc | accatgcatg | ggtggcagtc | tcagtgtgag | caatgacctg | 2400 |
| aatgaacaat | tgaaatgaaa | agaaaaaagt | attgttccaa | attaaacgtt | ttaacctttt | 2460 |
| aataggttta | tacaataatt | gatatatgtt | ttctgtatat | gtctaatttg | ttatcatcca | 2520 |
| tttagatata | gacgaaaaaa | aatctaagaa | ctaaaacaaa | tgctaatttg | aaatgaaggg | 2580 |
| agtatatatt | gggataatgt | cgatgagatc | cctcgtaata | tcaccgacat | cacacgtgtc | 2640 |
| cagttaatgt | atcagtgata | cgtgtattca | catttggtgc | gcgtaggcgt | acccaacaat | 2700 |
| tttgatcgac | tatcagaaaag | tc | | | | 2722 |

<210> 10
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthesized based on sequence from Agrobacterium tumefaciens

<400> 10
 gcgtccaatg ctgtcctcaa cta

23

<210> 11
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthesized based on sequence from Agrobacterium tumefaciens

<400> 11
 gctctcctcg tctgctaact cgt

23

<210> 12
 <211> 3017
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Promoter from Zea mays, Genbank Accession #L22344;
 Gene from Agrobacterium tumefaciens, Molecular and
 General Genetics 216:388-394 (1989); terminator from
 Zea mays, Genbank Accession #L22345.

| | | | | | | |
|------------|------------|-------------|-------------|-------------|-------------|-----|
| ttgccgagtg | ccatccttgg | acaactcgata | aagtatatatt | tattttttttt | atthttgccaa | 60 |
| ccaaactttt | tgtggtatgt | tcctacacta | tgtagatcta | catgtaccat | tttggcacia | 120 |
| ttacatattt | acaaaaatgt | tttctataaa | tattagattt | agttcgttta | tttgaatttc | 180 |
| ttcggaaaat | tcacatttaa | actgcaagtc | actcgaaaca | tggaaaaccg | tgcatgcaaa | 240 |
| ataaatgata | tgcatgttat | ctagcacaag | ttacgaccga | tttcagaagc | agaccagaat | 300 |
| cttcaagcac | catgctcact | aaacatgacc | gtgaacttgt | tatctagtgt | tttaaaaaatt | 360 |
| gtataaaaca | caaataaagt | cagaaattaa | tgaaacttgt | ccacatgtca | tgatatcata | 420 |
| tatagagggt | gtgataaaaa | tttgataatg | tttcggtaaa | gttgtgacgt | actatgtgta | 480 |
| gaaacctaag | tgacctacac | ataaaatcat | agagtttcaa | tgtagttcac | tcgacaaaga | 540 |

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|------|
| ctttgtcaag | tgtccgataa | aaagtactcg | acaaagaagc | cgttgtcgat | gtactgttcg | 600 |
| tcgagatctc | tttgtcgagt | gtcacactag | gcaaagtctt | tacggagtgt | ttttcaggct | 660 |
| ttgacactcg | gcaaagcgct | cgattccagt | agtgacagta | atttgcacat | aaaatagctg | 720 |
| agagatttag | gccccgtttc | aatctcacgg | gataaagttt | agcttcctgc | taaacttttag | 780 |
| ctatatgaat | tgaagtgcta | aagtttagtt | tcaattacca | ccattagctc | tctgttttag | 840 |
| attacaaatg | gctaaaaagta | gctaaaaaat | agctgctaaa | gtttatctcg | cgagattgaa | 900 |
| acagggcctt | aaaatgagtc | aactaataga | ccaactaatt | attagctatt | agtcggttagc | 960 |
| ttctttaatc | taagctaaaa | ccaactaata | gcttatttgt | tgaattacaa | ttagctcaac | 1020 |
| ggaattctct | gttttttctaa | aaaaaaaactg | cccctctctt | acagcaaatt | gtccgctgcc | 1080 |
| cgctcgtccag | atacaatgaa | cgtacctagt | aggaactctt | ttacacgctc | ggctcgtcgc | 1140 |
| cgcggtatcgg | agtccccgga | acacgacacc | actgtggaac | acgacaaaagt | ctgtctcagag | 1200 |
| gcggccacac | cctggcggtgc | accgagccgg | agccccgata | agcacggtaa | ggagagtacg | 1260 |
| gcgggacgtg | gcgacccgtg | tgtctgctgc | cacgcagcct | tcctccacgt | agccgcgcgg | 1320 |
| ccgcgccacg | taccagggcc | cggcgctggt | ataaatgcgc | gccacctccg | cttttagttct | 1380 |
| gcatacagcc | aacccaagga | tccaacaatg | gatctacgtc | taattttcgg | tccaacttgc | 1440 |
| acaggaaaga | catcgactgc | gatagctctt | gcccagcaga | ctggcctccc | agtcctctcg | 1500 |
| ctcgatcgcg | tccaatgctg | tcctcaacta | tcaaccggaa | gcgggcgacc | aacagtggaa | 1560 |
| gaactgaaag | gaacgactcg | tctgtacctt | gatgatcgcc | ctttggtaaa | gggtatcatt | 1620 |
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| gggcttatcc | ttgagggagg | atctatctcg | ttgtctcaggt | gcatggcgca | aagtcgttat | 1740 |
| tggaacgcgg | attttcggtg | gcatattatt | cgcaacgagt | tagcagacga | ggagagcttc | 1800 |
| atgagcgtgg | ccaagaccag | agttaagcag | atgttacgcc | cctctgcagg | tccttctatt | 1860 |
| atccaagagt | tggttcaact | ttggagggag | cctcggtctga | ggcccatact | ggaagggatc | 1920 |
| gatggatatt | gatatgccct | gctatttgc | accagaacc | agatcacgcc | cgatatgcta | 1980 |
| ttgcagctcg | acgcagatat | ggagaataaa | ttgattcacg | gtatcgctca | ggagtttcta | 2040 |
| atccatgcgc | gtcgacagga | acagaaattc | cctttgggtg | gcgcgacagc | tgctgaagcg | 2100 |
| tttgaaggac | caccatttcg | aatgtgagtt | aactatgtac | gtaagcggca | ggcagtgcaa | 2160 |
| taagtgtggc | tctgtagtat | gtacgtgcgg | gtacgatgct | gtaagctact | gaggcaagtc | 2220 |
| cataaataaa | taatgacacg | tgcggtgtct | ataatctctt | cgcttcttca | tttgtccctt | 2280 |
| tgcggtgttt | ggcatccatt | gatgcggtta | cgctgagaac | agacacagca | gacgaaccaa | 2340 |
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| gaacacagca | aattagtcat | ctaactatta | gcccctacat | gtttcagacg | atacataaat | 2460 |
| atagcccatc | cttagcaatt | agctattggc | cctgcccata | ccaagcaatg | atctcgaagt | 2520 |
| atttttaata | tatagtattt | ttaatatgta | gcttttaaaa | ttagaagata | attttgagac | 2580 |
| aaaaatctcc | aagtattttt | ttgggtattt | tttactgcct | ccgtttttct | ttatttctcg | 2640 |
| tcacctagtt | taattttgtg | ctaactcggt | ataaacgaaa | cagagagaaa | agttactcta | 2700 |
| aaagcaactc | caacagatta | gatataaatc | ttatatcctg | cctagagctg | ttaaaaagat | 2760 |
| agacaacttt | agtggattag | tgtatgcaac | aaactctcca | aattttaagta | tcccaactac | 2820 |
| ccaacgcata | tcgttccctt | ttcattggcg | cacgaacttt | cacctgctat | agccgacgta | 2880 |
| catgttcggt | ttttttgggc | ggcgcttact | ttcttccccg | ttcgttctca | gcacgcgaac | 2940 |
| tcaatttggt | atggcgggag | agcccttgta | tcccaggtag | taatgcacag | atatgcatta | 3000 |
| ttattattca | taaaaga | | | | | 3017 |